

" ECONOMIC COMMISSION FOR AFRICA

AFRICAN REGIONAL CENTRE FOR INDUSTRIAL DESIGN
AND MANUFACTURING

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I. Authority, origin and nature of proposal

This Centre was accorded high priority in the Lima Declaration and Plan of Action on Industrial Development and Co-operation ^{1/}; by the second Conference of African Ministers of Industry held at Cairo in 1973 ^{2/}; and by the third ECA Conference of Ministers held at Nairobi in February 1975 ^{3/}. Other legislative authorities include the Lima Declaration target for industrialization in the African region focusing mainly on basic and strategic industries and small-scale industries for the rural sector, General Assembly resolution 3201(S-VI) and 3202 (S-VI) on the establishment of a new international economic order; the resolution on the transfer and adaptation of industrial technology adopted by the African Ministers of Industry at their third meeting; and the resolutions of the OAU Heads of State and Government adopted in Mauritius.

II. Justification and need for establishing the Centre

1. Need to produce spare parts and major components which are costly and often delayed. These needs are likely to **increase** even more with the increased pace of industrialization;
2. Repair and maintenance of machinery and equipment and their components; skilled manpower in this sector is generally not locally available in most African countries;
3. The design and manufacture of any product require the capability for drafting and interpreting blueprints with a view to using them;
4. The translation of technological blueprints into concrete spare parts, simple engineering instruments, components and simple machine tools requires the existence of adequate workshops, foundries and forging equipment and the necessary skills;
5. Even in existing workshops in Africa there is a general lack of appropriate information systems in innovative techniques, costing and supply sources. This is particularly acute in rural areas;
6. Need for upgrading existing workshops, manpower and institutions which deal with the improvement of tools and equipment and the manpower.
7. Need to improve traditional tools by creating adapted prototypes for more efficient output;

^{1/} Paragraph 58 (b).

^{2/} Declaration on Industrialization in Africa: Principles and Guidelines for Co-operation and Development.

^{3/} Resolution 256(XII), para.1 (n) of the third ECA Conference of Ministers.

8. If Africa wants to accelerate its industrialization it is incumbent on it to produce its own machine tools required for maintenance as well as for producing capital goods.

III. Objectives

The aim of this Centre is to assist African countries directly and through their own national institutions in:

1. developing the capability for engineering drawings and interpretation;
2. developing the capability for making designs of tools, implements, components, simple engineering instruments and simple machine tools and for their production;
3. assisting Governments in creating and strengthening an adequate number of workshops, foundry and forging facilities related to small-scale and rural industries as well as to large ones in which prototypes can be developed and tested;
4. in the event that mass production of these prototypes is justified, the Centre may offer technical assistance to the Governments for production purposes;
5. the Centre will also organize an adequate data bank from all sources for the benefit of African countries;
6. the Centre will assist in upgrading the capability of personnel working in similar national centres.

IV. Modalities of operation

1. Close working relationship with similar national and subregional institutions;
2. Organization of an information system whereby the Centre can obtain data related to its objectives from inside and outside the region and ensure the flow of information to national centres;
3. Preparation of an inventory of the capability of existing national workshops, engineering firms and institutions in this field in order to determine the critical areas for improvements;
4. On the basis of the information collected, the Centre will then help countries to develop programme for improving their capability for engineering drawing, design, prototype production and upgrading foundry, forging facilities and so on;
5. Help national institutions in establishing a working relationship with the industrial sector, local engineering research institutions and relevant ministries;
6. The Centre should establish working relationships with similar institutions in the rest of the world and particularly in other developing regions through technical co-operation among developing countries (TCDC);

7. The Centre will also assist Governments in examining their policies for purchasing and producing components and spare parts to ensure effective utilization of the improved capacities of the national centres and facilities;
8. Assist national centres in organizing mobile workshops for the repair and maintenance of tools as well as for improving production techniques for improved tools and equipment in the rural areas.

V. Interrelationship with other regional centres and the Fund

1. At the regional level, the Centre will establish a close working relationship, as appropriate, with the regional centre for the transfer, adaptation and development of technology in such fields as industrial licensing and patents. It will also establish similar working relationships with consulting engineering and management services in feasibility studies and particularly in regard to the costing of projects;
2. AIDF will assist in preinvestment activities connected with the establishment of foundries, forging and other facilities in collaboration with consulting engineering and management services. This interrelationship covers the event that mass production of products is envisaged;
3. The Centre will assist in the standardization of information and techniques secured or developed by the national, regional and interregional centres for the transfer, adaptation and development of technology in the African region;
4. The regional centres should have an overall machinery for co-ordinating their policies and programmes with AIDF.

VI. Phasing

While the final decision regarding the phasing of the project will be determined by the findings of the field mission and experts from ministries of finance, industry and planning, nevertheless it is envisaged that the first phase will include the project as described in section III above. In the second phase, the Centre will extend assistance to institutions in drawing simple machine tools.

VII. Expected impact

1. It will reduce substantially imports of spare parts and components;
2. It will enhance the capability of African countries in the domestic production of improved tools, simple engineering instruments and components;
3. In time, the Centre will increase the capability of African countries to design and produce simple machine tools required in the manufacture of capital goods;
4. In general, the Centre will contribute substantially to the transfer, adaptation and development of technology in the African region;

5. Through the production of components and simple machine tools, the Centre, in collaboration with other national and regional centres, will greatly contribute to the requisite industrial structural changes for self-sustaining industrial development in Africa;
6. Indigenization of expertise at the regional and national levels;
7. Availability of technical services at short notice;
8. Saving of foreign exchange.

VIII. Sources of financing

The sources of financing for the Centre and its operations will consist of:

1. Subscriptions and/or grants from African Member countries 4/;
2. Subscriptions and/or grants from developed countries;
3. Subscriptions and/or grants from developing countries (especially oil producers);
4. Subscriptions, grants and soft loans from intergovernmental organizations in Africa such as the African Development Bank (ADB) or the Arab Bank for Economic Development in Africa (ABEDIA)
5. Technical assistance from bilateral and multilateral sources.

IX. Resource requirements

The resources required will be estimated on the basis of:

1. the number of projects to be undertaken by the Centre;
2. the number of staff required to undertake such a task;
3. salary levels.

The order of magnitude of the financial resource requirements for the centre is to be determined by the findings of the mission and reflected in the operational budget.

X. Personnel

The qualifications of personnel required for the Centre will be directly related to the objectives listed above. The staff must be such as to enable the Centre to implement at least a minimum effective programme as described in the objectives and modalities. Based on the concept of self-reliance, it is expected that the Centre will be staffed predominantly by Africans. However, in view of the present scarcity of qualified African personnel in this field, the ratio of African staff to expatriates as well as the actual total personnel will have to be determined by the findings of the field mission and the committee of experts.

- 4/ Opinions are divided as to what proportion Africa should contribute to the Centre. One is to request African Governments to put in as much as two thirds of the Centre's requirements as a concrete sign of self-reliance; while the second view is to leave the matter open.

XI. Location and organizational structure

The choice of location will depend on the following basic criteria;

Substantial contributions from the host Government;

Fair geographical and linguistic distribution of the centres;

Good communications;

Suitable industrial environment;

Local costs.

The Organizational structure required is to be recommended by the findings of the field mission.

XII. Schedule of implementation

1. Discussions with selected countries through field missions - May - July 1977.
2. Meeting of experts from ECA, UNIDO, Ministries of finance, industry and planning to draw up the final project document and assess country inputs regarding financing - September 1977.
3. Meeting of plenipotentiaries on the establishment of the Centre - December 1977
4. Establishment of the Centre - December 1977.

TERMS OF REFERENCE

I. Background

1. The proposal for the establishment of this Centre was accorded high priority by the second Conference of African Ministers of Industry, held in Cairo in December 1973, and endorsed by the third Conference held in Nairobi in December 1975.
2. The objectives of this regional Centre are to support, directly or through corresponding national African institutions, the development of the capability for designing and producing spares, components, tools and fittings as well as simple machine tools and the development of national repair workshops.

II. Tasks to be performed by the mission

3. The mission is expected to identify and evaluate, in a comprehensive but concise manner existing institutional facilities, projects, and industrial design and manufacturing centres (if any) their linkages to the productive, educational and research sectors so as to establish appropriate modalities for building on existing ones and to recommend policy guidelines and strategies for any improvements required to achieve the objectives set.
4. In view of the above and in the light of national, subregional and regional objectives, the mission should formulate a coherent strategy, appropriate techniques and ways and means to implement the new projects identified in this sector, improve and strengthen existing ones, having due regard to the needs and stage of development of the economy, future prospects and intersectoral linkages and priorities aiming at self-reliance and at any regional and interregional co-operation system. In addition, the mission should, on the basis of the information collected from the field and on experience gathered from other developing regions, identify priority areas for action and draw up short and long-term development programmes for the benefit of both the countries visited and of ECA.
5. Based on its findings, the mission should present its recommendations in the form of a document covering the following areas:
 - (a) A general report including overall policy matters and strategies for action;
 - (b) A work programme of the Centre for the first five years;
 - (c) Specific relations between regional and national centres;
 - (d) A budget for implementation of the programme for the first five years;
 - (e) A draft agreement among African countries for the establishment of the regional Centre, including the terms of reference, structure and functions of the regional and national centres, and sources of financing;
 - (f) Recommendations on the criteria of location of the Centre taking into account, inter alia, a substantial contribution to be made by the host Government, good communications, suitable industrial environment and reasonable local costs;

- (g) Modality for establishing contacts with similar institutions in other developing countries and the world; and
- (h) Action programme for the establishment of the Centre.

III. Modalities for the operation of the mission

6. The regional Centre as well as the national centres should be geared to solving (a) current concrete industrial design and manufacturing problems; (b) ~~medium-term~~ concrete industrial design and manufacturing problems; and (c) long-term concrete design and manufacturing problems. The mission should therefore discuss with those persons who utilize, pay for, and plan socio-economic development and training of personnel.
7. The mission should therefore carry out the above tasks by visiting:
- (a) Ministries of finance, planning, industry, education, mining and public works, agriculture, transport and communications, and problem-oriented research institutions;
 - (b) Public sector institutions engaged in productive activities, i.e. public utilities, State corporations and engineering works, workshops, agribusinesses, agricultural co-operatives and editors of one or two leading national papers;
 - (c) Institutions engaged in scientific and technological activities (e.g. academies of scientific research and technology, national research centres, etc.);
 - (d) Indigenous industrial technological enterprises in the private sector;
 - (e) Formal and non-formal educational institutions in science and technology; university, polytechnics, central manpower planning bodies (if any), technical schools, semi-professional training programmes, industrial training schemes, on-the-job training etc.;
 - (f) International agencies involved in the field; and
 - (g) Such other institutions and individuals as may assist the mission.

IV. Composition of the mission

8. The mission will consist primarily of:
- 1 industrial engineer with experience in similar institutions (as team leader)
 - 2 ~~mechanical~~ engineers with design expertise
 - 2 experts in foundry and forging
 - 2 industrial economists

9. The mission will be divided into two teams, each one covering an agreed set of countries out of a total of 15 countries;

10. The team leader, who should come from outside the United Nations system as an independent consultant, will be appointed by ECA.

V. Country coverage

11. The mission should aim at visiting a diverse cross-section of African countries including large and semi-industrialized, medium industrializing least developed, land-locked and island countries, countries with different political ideologies and newly independent countries.

VI. Duration and schedule of the mission

12. The mission will start its work on 1 April 1977 with a one-week briefing at the ECA headquarters in Addis Ababa. The mission will spend about two months in the field and at least two more months for the finalization of the report.

VII. Report of the mission

13. The report of the mission should be completed in Addis Ababa immediately after the field mission and should be prepared in such a way as to outline the priority areas for the establishment of industrial design and manufacturing centre during the period 1977-1981.

JOB DESCRIPTION

- Title: Team Leader for the ECA/UNIDO Field Mission on the establishment of the African Regional Centre for Industrial Design and Manufacturing
- Grade/Post No: Equivalent to P-5 or D-1
- Date required: Desirable mid-May but before June 1977
- Duty station: ECA headquarters, Addis Ababa, with extensive travel to African countries during the field mission
- Duties: Under the overall direction of the Executive Secretary and, on his behalf, the day-to-day direction of the Chief of the Joint ECA/UNIDO Industry Division, the Team Leader will supervise a mechanical engineer with engineering design experience, a foundry and forging engineer, and an industrial economist. The Team Leader is expected to carry out the duties and functions contained in the project document and terms of reference for the African Regional Centre for Industrial Design and Manufacturing with a view to producing a report covering the following aspects:
- (i) General report;
 - (ii) Work programme of the Centre for the first five years;
 - (iii) Specific relations between regional and national centres;
 - (iv) A budget for the implementation of the programme for the first five years;
 - (v) A draft agreement among African countries for the establishment of the regional Centre including the terms of reference of the Centre, the structure and functions of the regional and national centres, and sources of financing;
 - (iv) Recommendations on the criteria for the location of the Centre taking into account, inter alia, a substantial contribution to be made by the host Government, good communications, suitable industrial environment, and reasonable local costs;
 - (vii) Modality for establishment of contacts with similar institutions in other developing countries and the world; and
 - (viii) Action programme for the establishment of the Centre.

Qualifications:

University degree in engineering or related areas, organizational experience and expertise, comprehensive practical experience in the field of engineering design and manufacture of spares, components, tools and fittings as well as simple prototype machine tools, practical work in similar institutions; general awareness of industrial development problems in developing countries, supervision ability as the leader of the other experts.

Languages:

Fluency either in English or French, with working knowledge of the other.